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Chemical company earnings continued spectacular growth in second quarter Page 10

AUGUST 15, 1988

CHEMICAL & ENGINEERING

NEWS

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Fluorine-18

Imaging the brain for Parkinson's disease studies
Page 26

CHEMICAL & ENGINEERING
NEWS
AUGUST 15, 1988

Volume 66, Number 33
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News of the Week

■ **First joint U.S.-Soviet nuclear arms test is set to take place this week at Nevada Test Site.** **Page 4**

■ **Italy's Montedison and ENI will merge their chemical interests into a new, huge chemical company to be called Enimont.** **Page 5**

■ **EPA's proposed standard to reduce lead levels in drinking water has drawn some criticism.** **Page 5**

■ **New AIDS drug genetically engineered to slow the spread of human immunodeficiency virus (HIV) has begun tests in humans.** **Page 6**

■ **The U.S.-Canada free trade agreement has passed Congress, bringing a North American Common Market a step closer.** **Page 6**

Cover: Positron emission tomographic image of the brain of a patient with Parkinson's disease shows lower-than-normal accumulation of a fluorine-18-labeled dopamine analog in the putamen (pink region). Photo courtesy of E. Stephen Garnett, Chedoke-McMaster Hospitals, Hamilton, Ontario

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Business

Earnings of leading U.S. chemical companies shot up 70% in the second quarter, the fourth straight period in which the increase was more than 50%. **Page 10**

Government

OSHA's proposed revision of exposure levels for hazardous chemicals is taking some hard knocks in public hearings. **Page 17**

The safety of the Pentagon's chemical and biological arms research program is being strongly questioned by a Senate subcommittee, other groups. **Page 19**

Science

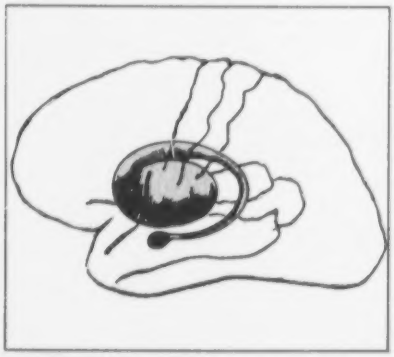
"Gmelin Handbook of Inorganic Chemistry" flourishes 200 years after birth of its founder, Leopold Gmelin, whose birthday this month is marked by issuance of West German postage stamp. **Page 22**

Education

Disabled students complete hands-on research program held at East Carolina University, Greenville, N.C., this summer. **Page 25**

ACS News

Chemical professionals are still being hit by major staff reductions in spite of the industry's sharply improving financial fortunes. **Page 31**



Technology

Safe, noninvasive ^{18}F positron emission tomography is advancing imaging of the human brain, gives new insights into metabolism of dopamine in brain of parkinsonian patients through use of labeled fluorodopa tracer. **Page 26**

Chemical & Engineering News

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LETTERS

Broaden chemical education

SIR: As a graduate of McGill University (B.S. 1985) and a native of Montreal, I was pleased to see the feature article on chemistry education for the public (C&EN, June 20, page 29) for several reasons.

I have felt for a long time that the fine work of David Harpp, Ariel Fenster, and Joseph Schwarcz has long deserved national, if not international attention. As an undergraduate in their course, "The World of Chemistry," I had a difficult time with my peers in other branches of science, and especially arts, because as a chemistry honors student they suspected that I possessed an unfair advantage with respect to the material. This assumption was quickly proved false, as I, too, had to study very hard to absorb the large quantity of information on the chemistry that surrounds us everywhere in our daily lives.

Now, as a chemistry graduate student, I am even more able to appreciate the importance of that training, whether it is in the laboratory or at home. It is vital that chemists get their noses out of their books and away from their computers long enough to realize that we have a responsibility to educate those around us and remove much of the stigma surrounding chemists and their work.

On another note, I am disappointed that it took an international chemical congress held in Canada to draw the well-deserved attention to these programs that have been in existence for almost a decade. As a Canadian citizen studying in the U.S., I am often saddened by the relatively little coverage given to the outstanding science performed at many Canadian universities. I hope American chemists can learn a lesson from their neighbors "up North" and make a more concentrated effort to broaden the chemical education of the public.

Debra R. Luffer
Indiana University, Bloomington

A vote for Madam Chairman

SIR: I can't resist coming out of the Pandora's box opened by Donald Paulson (C&EN, June 13, page 5). Paulson wants to be called a chair. That's all right, I suppose, as long as one understands the context. But why burden a fine little word like chair with multiple meanings, and thus add to its potential for ambiguity?

Continuing with our trivial pursuits, let me repeat what the parliamentarians said concerning such words. From the 20th convention of the National Association of Parliamentarians in San Francisco came the following: "Whereas, parliamentary law has a language all its own; and whereas, in olden times the one presiding was the only person provided with a chair, while others sat on benches, hence he was called the Chairman: and whereas, since time immemorial the term 'Mister Chairman' or 'Madam Chairman' has always been employed to differentiate between sexes; and whereas, further effort toward sex differentiation is redundant and contrived; now therefore be it resolved that organizations and parliamentarians of the National Association of Parliamentarians must use the term Chairman instead of 'Chairperson,' and be it resolved that all members of the National Association of Parliamentarians should habitually stress the principle that the word Chairman belongs to the title of the office the same as the title of President or Secretary."

The above was submitted to "Dear Abby" in November 1983 by a woman, who went on to say that "a person should not be more concerned with his or her sex than the position held. Besides, it sounds contrived and unprofessional." Abby said that the resolution gets her vote.

W. T. Burr Jr.
Asheville, N.C.

Chemical weapons

SIR: We would like to comment on Harold B. Reisman's letter about chemical weapons (C&EN, April 25, page 2). The use of chemical weapons by Iraq has been proved by United Nations' teams of specialists several times.

But the key players in the Security Council, who are supplying Iraq with chemical weapons technology, did not let the Security Council condemn Iraq by name for the use of chemical weapons.

Staff and faculty members
Chemistry Department
Isfahan University of Technology, Iran

Correction

• July 25, page 5: Forensics Sciences Associates, Emeryville, Calif., is not a subsidiary of Cetus Corp., though it does collaborate with Cetus on some research projects.

Chemical Earnings Continue On Hot Streak in Second Quarter

William J. Storck,
C&EN Northeast News Bureau

Earnings at leading chemical companies continued their strong growth in this year's second quarter, adding to a string of several quarters showing superb performance. It marked the ninth consecutive quarter of double-digit earnings growth and the fourth straight period in which the rise was more than 50%.

The combined after-tax earnings from continuing operations of 30 major chemical firms climbed 70% in the second quarter, compared with last year's second quarter. And chemical earnings at oil and natural gas companies and diversified corporations that also produce chemicals also were up markedly.

There continues to be one simple reason for the vastly improved earnings at companies whose major business is production of chemicals: improved business—both domestic and foreign.

Demand for chemicals is up substantially. According to the Commerce Department, shipments of chemicals and allied products in the second quarter rose 13% from the same period last year to a seasonally adjusted $60 billion. And for industrial chemicals, the increase was a greater 14% to a seasonally adjusted $15.8 billion.

Production of chemicals and allied products in the second quarter, according to government data, rose a seasonally adjusted 8% over second-quarter 1987, causing the government's measure of theoretical capacity utilization to average more than 86% for the quarter. Chemical producers, and especially those making basic chemicals, agree that capacity use is much higher than the

Chemical industry leaders for the second quarter . . .

Sales

Rank 1988		$ Millions	Rank 1987
1	Dow Chemical	$4252.0	1
2	Monsanto	2263.0	2
3	Union Carbide	2130.0	3
4	W. R. Grace	1447.0	4
5	American Cyanamid	1246.3	5
6	Quantum Chemical	734.5	8
7	Hercules	704.7	6
8	Rohm & Haas	700.1	7
9	Arco Chemical	676.0	11
10	B. F. Goodrich	621.7	10

Earnings[a]

	$ Millions	Rank 1987
Dow Chemical	$636.0	1
Monsanto	220.0	2
Union Carbide	187.0	5
Arco Chemical	126.0	4
American Cyanamid	99.5	3
Quantum Chemical	85.1	13
Rohm & Haas	75.8	6
W. R. Grace	58.2	10
Ethyl	56.9	8
B. F. Goodrich	56.6	12

Profitability

	Earnings as % of sales	Rank 1987
Arco Chemical	18.6%	2
Georgia Gulf	17.2	5
International Flavors	16.6	1
Vista Chemical	16.2	17
Dow Chemical	15.0	10
First Mississippi	14.9	4
Aristech	13.2	15
Loctite	11.7	8
Quantum Chemical	11.6	28
Ethyl	11.5	3

. . . and for the first six months of 1988

Sales

Rank 1988		$ Millions	Rank 1987
1	Dow Chemical	$8233.0	1
2	Monsanto	4390.0	2
3	Union Carbide	4077.0	3
4	W. R. Grace	2744.0	4
5	American Cyanamid	2394.8	5
6	Quantum Chemical	1567.4	7
7	Hercules	1366.0	6
8	Rohm & Haas	1320.6	8
9	Arco Chemical	1259.0	12
10	Air Products	1223.9	9

Earnings[a]

	$ Millions	Rank 1987
Dow Chemical	$1143.0	1
Monsanto	430.0	2
Union Carbide	288.0	4
Arco Chemical	234.0	5
Quantum Chemical	185.6	11
American Cyanamid	178.7	3
Rohm & Haas	138.0	6
Ethyl	110.0	8
Air Products	108.0	9
W. R. Grace	96.9	12

Profitability

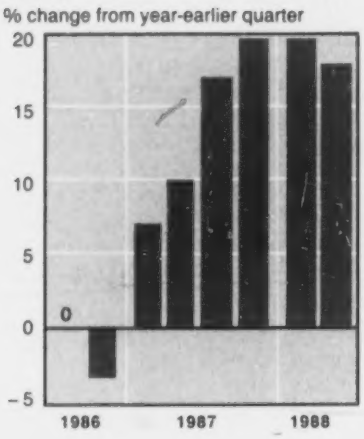
	Earnings as % of sales	Rank 1987
Arco Chemical	18.6%	2
Georgia Gulf	17.3	8
Aristech	16.6	16
International Flavors	16.3	1
Vista Chemical	15.7	15
Dow Chemical	13.9	8
Quantum Chemical	11.8	24
Ethyl	11.3	3
Betz Laboratories	10.7	4
Loctite	10.7	6

Note: Based on 30 companies listed on page 12. a After taxes.

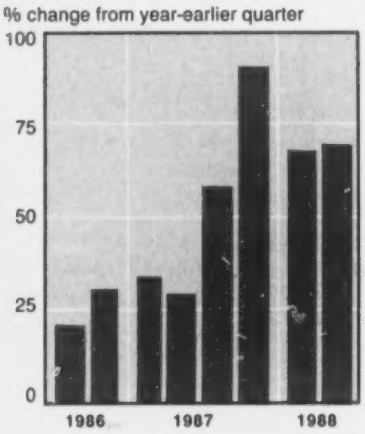
Chemical industry second-quarter 1988 results

- Sales climbed 18%
- Earnings soared 70%
- Profit margins at 10.3%
- Production rose 8%
- Prices increased 8%

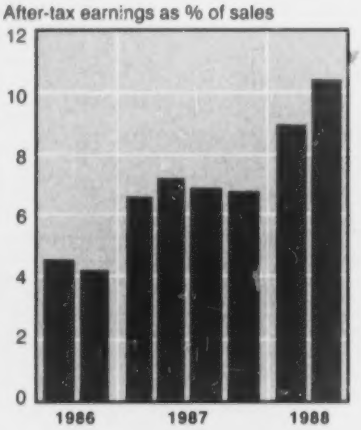
Sales



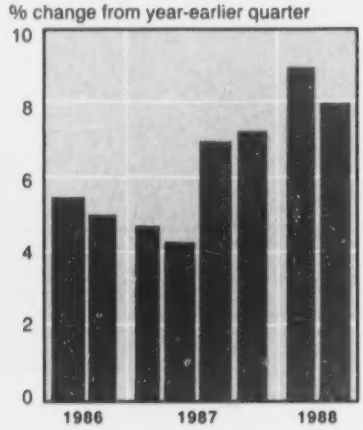
Earnings



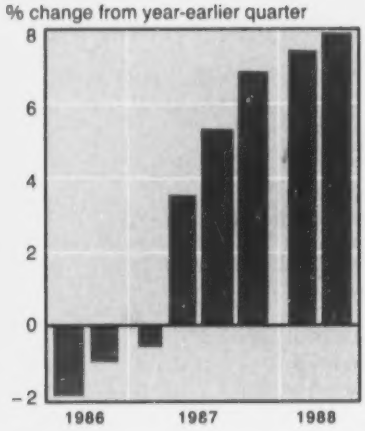
Profit margins



Production

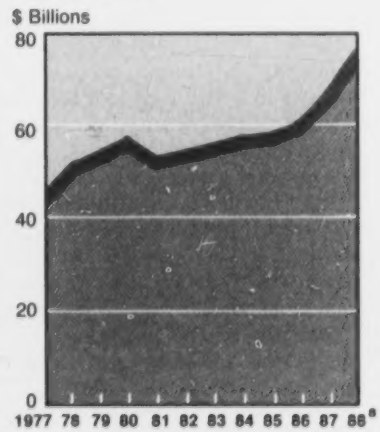


Prices

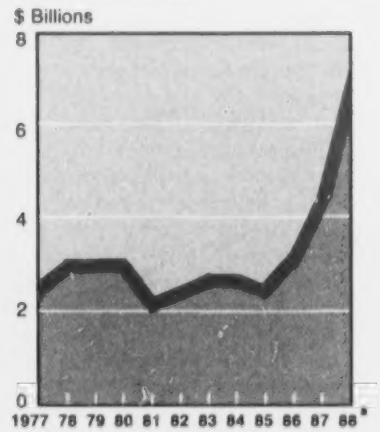


Sales in 1988 will climb about 15% as earnings jump 60%, pushing profit margins to 9.5%

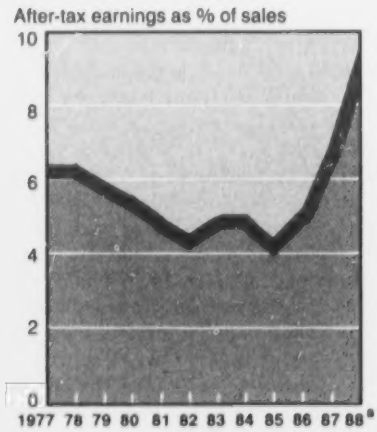
Annual sales



Annual earnings



Annual profit margins



Note: All sales, earnings, and profit margin data are based on combined results of 30 companies listed on page 12. a C&EN estimates.

Profitability improves greatly at leading U.S. chemical companies

	SECOND-QUARTER 1988						FIRST-HALF 1988			
	Sales ($ millions)	Earnings[a] ($ millions)	Change from 1987 Sales	Change from 1987 Earnings	Profit margin[b] 1988	Profit margin[b] 1987	Sales ($ millions)	Earnings[a] ($ millions)	Change from 1987 Sales	Change from 1987 Earnings
Air Products[c]	$ 605.1	$ 52.3	15%	18%	8.6%	8.4%	$ 1,223.9	$108.0	16%	33%
American Cyanamid[c]	1,246.3	99.5	15	31	8.0	7.0	2,394.8	178.7	14	30
Arco Chemical[c]	676.0	126.0	37	80	18.6	14.2	1,259.0	234.0	34	81
Aristech	268.4	35.3	17	119	13.2	7.0	528.7	88.0	21	197
Betz Laboratories	111.9	12.0	15	19	10.8	10.4	217.7	23.2	17	17
Cabot[c]	423.8	16.6	20	14	3.9	4.1	889.7	35.0	21	38
Chemed	108.1	6.1	9	15	5.6	5.4	207.8	10.6	9	11
Crompton & Knowles	78.4	5.1	21	40	6.5	5.6	142.0	8.6	18	44
Dow Chemical[c]	4,252.0	636.0	25	102	15.0	9.2	8,233.0	1143.0	28	104
Ethyl[c]	493.4	56.9	17	19	11.5	11.4	973.4	110.0	20	17
First Mississippi	90.9	13.5	1	40	14.9	10.8	153.3	14.8	−5	23
H. B. Fuller	172.8	5.7	14	−18	3.3	4.6	327.4	10.4	13	−2
Georgia Gulf	276.4	47.5	58	161	17.2	10.4	498.3	86.1	51	200
B. F. Goodrich[c]	621.7	56.6	18	113	9.1	5.0	1,186.7	95.6	20	201
W. R. Grace[c]	1,447.0	58.2	26	62	4.0	3.1	2,744.0	96.9	30	103
Hercules[c]	704.7	47.3	2	−22	6.7	8.8	1,366.0	87.1	1	−20
International Flavors	234.2	38.8	17	25	16.6	15.5	458.2	74.7	21	28
International Minerals	262.7	29.6	−43	1038	11.3	0.6	585.5	61.6	−36	191
Loctite	110.8	12.9	15	35	11.7	9.9	219.7	23.4	18	29
Lubrizol	284.5	20.0	7	−3	7.0	7.8	577.7	39.1	7	−8
Monsanto[c]	2,263.0	220.0	12	43	9.7	7.6	4,390.0	430.0	13	47
Nalco Chemical	247.4	26.0	22	32	10.5	9.8	483.4	51.0	23	35
Olin[c]	578.0	29.0	19	32	5.0	4.5	1,145.0	58.0	19	23
Pennwalt	327.9	14.7	10	7	4.5	4.6	656.3	28.3	17	9
Petrolite	76.0	3.7	11	−10	4.9	6.0	155.5	8.4	17	3
Quantum Chemical[c]	734.5	85.1	33	287	11.6	4.0	1,567.4	185.6	30	265
Rohm & Haas[c]	700.1	75.8	17	22	10.8	10.4	1,320.6	138.0	17	15
Union Carbide[c]	2,130.0	187.0	28	171	8.8	4.2	4,077.0	288.0	22	113
Vista Chemical	186.3	30.1	16	184	16.2	5.6	404.9	63.4	30	190
Witco[c]	405.3	22.7	14	29	5.6	4.9	799.2	42.7	16	31
Total 15 larger companies	**$17,280.9**	**$1789.0**	**21%**	**71%**	**10.2%**	**7.2%**	**$33,569.8**	**$3230.5**	**21%**	**71%**
Total 15 smaller companies	**$ 2,836.8**	**$ 301.1**	**7%**	**65%**	**10.6%**	**6.8%**	**$ 5,616.5**	**$ 591.8**	**9%**	**69%**
GRAND TOTAL	**$20,117.7**	**$2070.1**	**18%**	**70%**	**10.3%**	**7.2%**	**$39,186.3**	**$3822.3**	**19%**	**70%**

a After-tax earnings from continuing operations excluding significant nonrecurring and extraordinary items. b After-tax earnings as a percentage of sales. c One of the 15 largest companies.

government figures show. For some commodity chemicals, in fact, plant use rate is 100% or higher, they say. As a result of the increasing demand, and tightening capacity situation, producers have placed many commodity chemical products—especially petrochemicals—on allocation, limiting customers to a percentage of their normal needs.

With use rates in the 90 to 100% range and tight to short supply situations, chemical producers are able to charge more—and in some cases, much more—for chemical products than they could just a year ago. Government figures show that in the second quarter, prices for chemicals and allied products were up about 10% from their year-earlier levels. And for industrial chemicals, prices were up about 9% from a year earlier.

Not reflected in the price data are discounts that were in place last year that have been eliminated this year and the fact that producers can expect to receive higher prices—in some cases double—for products shipped overseas than they would receive for products sold domestically.

The result is that chemical producers have been handed far greater earnings leverage than they have enjoyed in years. The high capacity use rates mean that chemical plants can operate much more efficiently. And producers can increase prices faster than their raw material costs are increasing. In fact, producers are starting to become concerned about price increases because they fear that customers may begin to switch back to competing materials such as metals or natural fibers as these materials become more cost competitive.

It looks, however, as if the good times are going to last for awhile. Gulf Coast sources say that July and August price increases have been substantial and generally are being accepted by their customers.

And just when it looks as if market demand may be slowing, something happens to pick it up again. For instance, U.S.-made automo-

FIRST-HALF 1988		12-MONTH RUNNING DATA			
Profit margin[b]		Change from 1987		Profit margin[b]	
1988	1987	Sales	Earnings	1988	1987
8.8%	7.7%	13%	31%	8.6%	7.4%
7.5	6.5	12	24	6.6	6.0
18.6	13.7	32	85	16.0	12.0
16.6	6.8	26	78	9.7	6.9
10.7	10.7	16	20	10.5	10.1
3.9	3.5	29	−10	3.6	5.2
5.1	5.0	4	16	5.2	4.7
6.1	5.0	11	43	5.6	4.3
13.9	8.7	26	103	12.0	7.5
11.3	11.6	17	12	11.1	11.6
9.6	7.4	14	97	7.4	4.3
3.2	3.7	12	19	4.0	3.8
17.3	8.7	43	200	17.0	8.1
8.1	3.2	11	98	5.8	3.3
3.5	2.3	28	589	3.7	0.7
6.4	8.0	3	−11	6.9	7.9
16.3	15.5	20	26	14.9	14.2
10.5	2.3	−10	1964	7.9	0.3
10.7	9.8	23	37	10.0	9.1
6.8	7.9	7	5	7.3	7.5
9.8	7.5	14	75	7.1	4.6
10.6	9.6	21	41	10.0	8.6
5.1	4.9	20	51	4.2	3.3
4.3	4.6	10	4	4.4	4.6
5.4	6.1	15	13	5.2	5.3
11.8	4.2	28	208	9.5	4.0
10.4	10.6	15	11	8.9	9.2
7.1	4.0	18	102	5.0	3.0
15.7	7.0	28	162	14.3	7.0
5.3	4.7	13	21	5.1	4.8
9.6%	**6.8%**	**18%**	**76%**	**7.9%**	**5.3%**
10.5%	**6.8%**	**19%**	**54%**	**10.6%**	**8.2%**
9.8%	**6.8%**	**18%**	**72%**	**8.3%**	**5.7%**

biles—one of the three major markets for chemical products—are finally beginning to take market share away from imported cars.

With this year's drought adding to the woes of farmers already deep in an agricultural recession, no one knows what will happen in this second major market.

But in the third—construction—the outlook seems to be brightening somewhat after a slowdown in the early part of the year. The National Association of Realtors' chief economist, John A. Tuccillo, says that the 8.4% May-to-June increase in sales of new single family homes indicates a robust housing market with significant demand remaining. Tuccillo cautions, however, "Although the demand is strong, it's not strong enough to sustain the June sale pace. We're expecting new home sales to drift downward for the rest of the year, especially as interest rates rise."

The increased demand and resultant earnings leverage provided earnings growth in the second quarter that was almost four times higher than sales growth. For the 30 chemical companies surveyed by C&EN, after-tax earnings from continuing operations increased 70% to an aggregate $2.07 billion on a sales increase of 18% to a total $20.1 billion. As a result, profit margins for the group rose to an average 10.3% in the second quarter from 7.2% in the same period in 1987.

In terms of earnings growth, the 15 larger firms on the list slightly outpaced the 15 smaller companies. The larger 15 had earnings growth of 71% to $1.77 billion, compared with growth of 65% to $301 million for the smaller companies. In sales, the top 15 scored a 21% increase to a total $17.3 billion against only a 7% sales rise for the smaller companies to a total of $2.84 billion.

However, the smaller companies led slightly in profitability. The average profit margin for this group was 10.6% in the second quarter compared with an average of 10.2% for the larger companies. In last year's second quarter, the group of larger companies had the better profit margin, at 7.2%, than the group of smaller companies, at 6.8%.

The results for the first half of this year show a trend similar to that for the second quarter. Overall, earnings for the 30 companies increased 70% from last year's first half to $3.82 billion on a sales increase of 19% to $39.2 billion. The average profit margin for the group rose to 9.8% from 6.8% in the same period last year.

For the half, the 15 larger companies had total earnings of $3.23 billion, up 71% from first-half 1987, and total sales of $33.6 billion, up 21%. The result was an average profit margin of 9.6%. The smaller companies showed an earnings increase of 69% to $592 million on a sales rise of 9% to $5.62 billion and an average profit margin of 10.5%. The profit margins for both groups in the first half of 1987 averaged 6.8%.

Petrochemicals largely stirred the earnings pot in the second quarter. At Arco Chemical, whose earnings increased 80%, president and chief executive officer Harold A. Sorgenti says, "Continued tight worldwide supply/demand conditions and a reduction in benzene feedstock costs enabled styrene margins to expand, significantly contributing to the gross profit increase versus the same period last year, despite a significant increase in ethylene feedstock costs."

Ground rules for C&EN earnings analysis

C&EN's quarterly report on financial performance of the U.S. chemical industry contains data from the 30 largest U.S. basic chemical companies and from 27 oil and diversified companies, each with more than $200 million in annual chemical sales.

To be included in the table of basic chemical producers, a company must have at least 50% of its sales in chemicals. That is why Du Pont, for example, is included in the table of diversified manufacturers.

In referring to chemical sales, C&EN means those chemicals whose molecular composition has been changed in the course of manufacture. Hence, chemical sales include those of traditional categories of basic petrochemicals and inorganics, organic intermediates and inorganic compounds, polymers such as plastics and fibers, agricultural chemicals, and specialty derivatives.

In listing earnings, the survey gives after-tax income for continuing operations before nonrecurring items and extraordinary charges. Foreign currency translations are included.

Pharmaceutical earnings advance in quarter

Like earnings for chemical companies and oil and diversified firms, earnings among major pharmaceutical producers generally rose in the second quarter. However, the growth in earnings was much slower than that for oil and gas companies and much less than that for the chemical companies, falling more in line with diversified firms that also produce chemicals.

For a group of 14 large pharmaceutical companies surveyed by C&EN, earnings for the quarter increased 17% to $1.76 billion on a sales increase of 12% to $13.5 billion. As a result, the average profit margin for this group was 13.0%, up from 12.6% in the second quarter of 1987.

For the first six months, earnings for the group totaled about $3.20 billion, a 16% increase from the first half of last year. Sales climbed 14% to $26.9 billion. And profitability increased slightly to 11.9% from 11.6% in last year's first half.

One of the big contributors to improved results in the quarter for many of the drug companies was increased foreign sales, and especially favorable currency translation factors. Also, companies benefited from a lower tax rate than was imposed upon them last year.

American Home Products says that net income benefited from a lower effective tax rate, which principally resulted from the reduction in the U.S. statutory rate. And Warner-Lambert says that net income per share for the quarter and the six months was favorably affected by the continued lower effective tax rate and by the company's stock repurchase program.

Baxter International says that it estimates that stronger foreign currency values contributed about $37 million to international sales for the quarter and $78 million for the half. Baxter's international sales for the quarter totaled $411 million; thus, foreign currency translations increased foreign sales almost 10% and total sales about 2% from what they would have been had the foreign exchange rates not improved.

At Bristol-Myers, chairman Richard L. Gelb says that domestic sales for the quarter increased 6%, whereas international sales improved 21%. The effect of exchange rate fluctuations increased total company sales less than 1% for the quarter and for the first six months, he says.

Favorable exchange rates aided sales growth at Squibb, contributing 4% for the quarter and 5% for the six-month period.

At Eli Lilly, chairman Richard D. Wood says: "Income grew faster than sales for a number of reasons, including lower manufacturing costs, higher interest income, and a lower corporate tax rate."

Some pharmaceutical companies say that they are generally on track for the year in terms of earnings improvement. At Squibb, chairman Richard M. Furlaud says: "The earnings for the quarter were on track with our earlier projections and we continue to expect growth in earnings per share for the full-year 1988 to be in excess of 25% despite the substantial increases in research and development expenses and in marketing support."

At a meeting of security analysts, Schering-Plough chairman Robert P. Luciano stated that the company's earnings per share for full-year 1988 should be about $3.45, up more than 20% from last year. He also expects, based on current trends, that earnings per share will improve another 20% next year.

Agricultural products helped some of the companies. Upjohn says that worldwide agricultural sales were up 14% from second-quarter 1987 with animal health products registering sharp gains in both foreign and domestic markets. At Lilly, worldwide sales of agricultural products increased, but only in the plant science area. Total sales of animal health products were down. And Pfizer says that its agricultural chemical sales were up 13% for the quarter.

	SECOND-QUARTER 1988						FIRST-HALF 1988					
	Sales	Earnings	Change from 1987		Profit margin		Sales	Earnings	Change from 1987		Profit margin	
	($ millions)		Sales	Earnings	1988	1987	($ millions)		Sales	Earnings	1988	1987
American Home Products	$1371.8	$215.9	12%	10%	15.7%	16.0%	$2784.4	$207.9	11%	−6%	7.5%	8.8%
Baxter International	1693.0	91.0	10	18	5.4	5.0	3328.0	182.0	11	27	5.5	4.8
Becton Dickinson	476.3	42.8	22	18	8.9	9.2	944.8	81.7	21	18	8.6	8.9
Bristol-Myers	1456.8	190.5	11	18	13.1	12.3	2976.8	218.6	12	13	7.3	7.2
Eli Lilly	1014.7	180.7	10	19	17.8	16.4	2086.8	413.9	10	17	19.8	18.7
Merck	1499.6	316.3	20	35	21.1	18.8	2936.6	587.0	24	35	20.0	18.5
Pfizer	1336.4	213.1	9	21	15.9	14.3	2634.3	432.9	12	18	16.4	15.7
Rorer Group	252.5	11.4	14	4	4.5	4.9	471.9	19.7	12	8	4.2	4.3
Schering-Plough	752.6	101.0	10	22	13.4	12.0	1505.1	202.5	10	21	13.5	12.2
SmithKline Beckman	1137.0	98.7	11	−25	8.7	12.9	2299.4	265.3	13	−5	11.5	13.7
Squibb	844.6	114.1	21	20	17.7	17.9	1241.5	205.0	24	25	16.5	16.4
A. H. Robins	202.6	8.0	11	3	3.9	4.2	428.7	22.1	9	−34	5.2	8.6
Upjohn	721.6	87.8	8	12	12.2	11.8	1384.0	183.2	10	15	13.2	12.6
Warner Lambert	951.3	91.6	13	27	9.6	8.5	1879.2	175.1	13	14	9.3	9.3

Oil, diversified manufacturers show improved results

	SECOND-QUARTER 1988						FIRST-HALF 1988					
	Sales	Earnings[a]	Change from 1987		Profit margin[b]		Sales	Earnings[a]	Change from 1987		Profit margin[b]	
	($ millions)		Sales	Earnings	1988	1987	($ millions)		Sales	Earnings	1988	1987
OIL AND GAS COMPANIES												
American Petrofina	$ 658.4	$ 49.0	8%	71%	7.4%	4.7%	$ 1,263.2	$ 79.4	10%	64%	6.3%	4.2%
Amoco	2,215.0	531.0	2	71	24.0	14.4	4,205.0	1000.0	4	75	23.8	14.2
Ashland	2,087.5	56.9	16	42	2.7	2.2	4,009.4	77.5	18	91	1.9	1.2
Atlantic Richfield	4,576.0	375.0	11	14	8.2	8.0	9,184.0	776.0	16	36	8.4	7.2
Chevron	7,300.0	343.0	0	60	4.7	2.9	14,600.0	805.0	5	53	5.4	3.7
Exxon	21,626.0	1200.0	7	4	5.5	5.7	43,634.0	2655.0	10	20	6.1	5.6
Kerr-McGee	729.9	35.9	0	32	4.9	3.8	1,393.7	46.1	9	−3	3.3	3.7
Mobil	14,214.0	452.0	16	59	3.2	2.3	28,114.0	957.0	17	81	3.4	2.2
Occidental Petroleum	4,744.0	87.0	10	def	1.8	def	9,220.0	145.0	9	def	1.6	def
Phillips Petroleum	2,881.0	170.0	9	5567	5.9	0.1	5,780.0	300.0	12	def	5.2	def
Shell Oil	5,427.0	263.0	5	−1	4.8	5.1	10,478.0	609.0	8	63	5.8	3.9
Sun Co.	2,430.0	96.0	0	7	4.0	3.7	4,820.0	156.0	3	22	3.2	2.7
Texaco	9,400.0	207.0	11	60	2.2	1.5	18,100.0	383.0	6	55	2.1	1.5
Unocal	2,553.0	64.0	6	3	2.5	2.6	4,851.0	108.0	8	−12	2.2	2.7
DIVERSIFIED MANUFACTURERS												
Allied-Signal	3,129.0	128.0	10	15	4.1	3.9	6,071.0	240.0	11	13	4.0	3.9
Borden	1,783.7	73.7	11	18	4.1	3.9	3,386.1	126.1	12	18	3.7	3.5
Du Pont	8,500.0	639.0	9	27	7.5	6.5	16,500.0	1229.0	11	37	7.4	6.0
Eastman Kodak	4,134.0	390.0	29	8	9.4	11.3	7,462.0	650.0	27	20	8.7	9.2
Engelhard	529.8	14.1	−12	−22	2.7	3.0	1,041.2	27.5	−9	−13	2.6	2.8
FMC	892.7	37.8	8	−24	4.2	6.0	1,606.6	62.0	3	−17	3.9	4.8
Ferro Corp.	259.3	11.9	19	65	4.6	3.3	500.5	23.1	18	65	4.6	3.3
GAF	266.8	35.4	25	19	13.3	13.9	483.3	57.2	19	14	11.8	12.4
3M	2,711.0	309.0	14	29	11.4	10.1	5,313.0	586.0	16	29	11.0	9.9
Morton-Thiokol	623.2	38.0	12	5	6.1	6.5	1,227.7	79.5	14	9	6.5	6.7
NL Industries	393.8	38.6	13	676	9.8	1.4	767.4	70.2	17	def	9.1	def
PPG Industries	1,451.0	133.8	9	31	9.2	7.7	2,824.0	252.4	9	33	8.9	7.3
Vulcan Materials	284.5	46.0	20	21	16.2	15.9	487.2	61.6	20	27	12.6	11.9

a After-tax earnings from continuing operations excluding significant nonrecurring and extraordinary items. b After-tax earnings as a percentage of sales. def = deficit.

Quantum Chemical chairman and chief executive officer John Hoyt Stookey attributed the company's 33% sales increase and 287% jump in earnings to continued strong demand with generally higher selling prices and improved profit margins for petrochemicals.

And Aristech's chairman and chief executive officer Thomas Marshall attributed a 17% sales growth and 119% profit growth in the second quarter to high operating levels and continued market strength, both domestic and export, for the company's product lines, especially phenol and related products, and polypropylene resins.

The contribution of petrochemicals to the bottom line is especially evident at the oil companies. Amoco's chemical operations had earnings of $189 million in the quarter, up 81% from last year. The company says that olefins earnings were at record levels as margins expanded in the tight, capacity-limited market. Sales volumes and margins continued very strong for polymer and chemical products, reflecting continuing robust worldwide demand, the company says.

Texaco posted a 132% increase in chemical earnings to $44 million in the quarter, reflecting higher margins from improved operating efficiencies and higher sales prices, particularly in the olefins business, the company indicates.

Shell Oil showed only a 32% increase in second-quarter chemical earnings to $133 million, but it had a limiting factor—the shutdown of its ethylene cracker. President Frank H. Richardson says, "The improvements in both 1988 periods resulted primarily from higher margins in commodity chemicals and polymers. The explosion at Norco impaired second-quarter chemical earnings, primarily because of its impact on ethylene production."

However, those higher prices that petrochemical companies were receiving translated into higher raw material costs for other chemical firms. At Rohm & Haas, chairman J. Lawrence Wilson says that "profit margins were maintained as the combined effects of higher production volume, good plant operations, and higher selling prices overcame the negative impact of sharply higher feedstock costs."

Hercules, Witco, and Lubrizol also noted higher raw materials costs. □

Chemists Still Being Fired Despite Good Times for Industry

Michael Heylin, C&EN Washington

Better market conditions and the corporate restructuring and streamlining efforts of recent years have combined to sharply revive the financial fortunes of chemical and related industries over the past several quarters. But these improvements have not been universal and major staff reductions affecting chemical professionals are still happening.

The latest report by ACS's Committee on Professional Relations (CPR) examines eight such mass terminations that occurred between February 1986 and April 1988. These cutbacks involved about 200 chemists and chemical engineers. Several of these reductions included many terminees who took either voluntary or involuntary early retirement. The eight firms involved reported mixed earnings performances in 1987, with about as many increases as declines compared with 1986.

The largest mass termination affected 53 chemical professionals at General Foods. It included 40 voluntary retirements. At Allied-Signal, 14 of 19 involuntary terminees were eligible for normal or early retirement benefits. And many of the 35 chemical professionals caught in an involuntary companywide staff reduction by Phillips Petroleum were eligible for an early retirement program.

According to CPR, the other five terminations covered in the report involved about 40 chemical professionals at Dartco, about 20 at Domino Amjet, 19 at Colgate-Palmolive, 17 at Akzo America, and seven at Gencorp. The terminations at Gencorp and Colgate-Palmolive were both due to "restructurings," in Gencorp's case triggered by a hostile takeover attempt.

Chemical professionals involved in these eight terminations generally fared better than did colleagues involved in earlier mass terminations. However, CPR is concerned about the increasing use of restrictive termination agreements that terminees must sign to receive maximum separation benefits. These agreements severely restrict the activities of ex-employees. Such agreements limit the ability of terminees to bring suit against their former employers. In some instances, they also restrict terminees' freedom to reveal severance conditions.

This latest CPR report is the 27th in a series dating back to 1974. They all compare the performance of em-

Employer compliance with ACS guidelines

These employers provided information	Approximate number of employees separated	Advance notice	Severance pay	Assistance	Pension vesting	Employee service	Protection plans
Allied-Signal, Buffalo Research Laboratory (Buffalo, N.Y.)	19		▨			■	▨
Colgate-Palmolive, Research Center (Piscataway, N.J.)	19	■					
Gencorp, Research Division (Akron, Ohio)	7	■	▨			■	
General Foods, Technical Center (Tarrytown, N.Y.)	53					■	
Phillips Petroleum (Bartlesville, Okla.)	35	▨				▨	
These employers provided no information; hence, all ratings based on terminee responses							
Akzo America, Stauffer Chemical (Dobbs Ferry, N.Y.)	17					■	▨
Dartco Mfg., Division of Premark International (Augusta, Ga.)	40	■	▨			■	▨
Domino Amjet (Waukegan, Ill.)	20	■		■	*		

* No information from any source.

□ Employer met or exceeded guideline standard.

▨ Two or more individuals below guideline standard, but average experience better than "substantially below" criterion.

■ Employer was substantially below guideline standard, which is defined as follows:

- Advance notice—less than two weeks.
- Assistance—no assistance rendered.
- Severance pay—less than one week per year of service.
- Employee service—more than 40% of terminees had 10 or more years of service.
- Protection plans—no continuation of protection plans.

ployers terminating chemical professionals against standards contained in ACS's Professional Employment Guidelines (PEG). CPR defines a mass termination as a situation in which the employment of three or more chemical professionals is terminated within a six-month period for reasons other than continuation of previously documented inadequate performance, completion of a contract, or cause. All terminees do not have to have worked at the same location.

The latest report makes comparisons against six standards. These are concerned with advance notice, severance pay, assistance in finding new employment, pension vesting, length of employee service, and protection plans. Earlier reports also included a standard on rehire privileges. An employer was deemed to comply if it explained its rehire policy to terminees, regardless of what the policy was. CPR now feels that this is not consistent with the original intent of encouraging the preferential rehiring of terminees.

In the more than 230 mass terminations examined in the 26 previous reports, employers complied with the six standards covered in the latest report an average of 48% of the time. In the latest report compliance was at a relatively high 62%. This apparently reflects the generally more generous treatment afforded those taking early retirement or qualifying for special severance packages—the golden, or at least bronze, parachute syndrome.

In examining terminations, CPR seeks information from both employers and terminees. Traditionally about two thirds of employers have provided data, including five of eight in the latest report. For this report CPR also received help from the New York, Northeast Oklahoma, and Western New York local sections of ACS in obtaining data directly from terminees. Such information tends to be spotty. In some cases it comes from a very small percentage of terminees.

CPR encourages individual ACS members to send information on terminations of which they have personal knowledge to American Chemical Society, Office of Professional Relations, 1155—16th St., N.W., Washington, D.C. 20036. The committee will provide, on request, copies of its termination reports as well as a summary list.

CPR is currently examining three more mass terminations that occurred between January and March 1988. They were at Battelle Memorial Institute, Westinghouse-Hanford, and PPG Industries.

The PEG guideline for severance pay calls for a minimum of two weeks' pay for each year of service. In the previous 26 reports it was complied with only 19% of the time. In the latest report five employers fully complied. The other three met the standard for most, but not all, of their terminees.

However, the severance agreements that are of concern to CPR were prevalent in this latest batch of mass terminations. Terminees at Allied-Signal, Colgate-Palmolive, Dartco, and General Foods were required to sign termination agreements that contained conditions for severance and/or a release from any other claims. Colgate offered two severance packages. The higher package was contingent on the terminee's promise not to sue the company for any grievances arising from employment or termination. At Dartco, all terminees who supplied information to CPR reported signing a special release of all claims in exchange for an additional 13 weeks of severance pay.

Another PEG standard that has been complied with poorly is the one concerning employee service. It states that those with a minimum of 10 years of service should not be terminated except for continuation of already documented inadequate performance or cause. For the previous 26 reports the standard was complied with only 22% of the time. And for the nine reports since 1984 compliance has dropped to only 9%. This apparently reflects the widespread use of early retirement programs. In the latest report, two of the eight employers complied. In the termination at Allied-Signal, 16 of the 19 terminees had 10 or more years of service, as did 30 of the 53 terminees at General Foods.

The guideline for advance notice calls for a minimum of four weeks. In the latest report, three of the eight employers complied. This was in line with the 39% compliance rate for the previous 26 reports.

Employee protection plans should be extended for a minimum of one month plus two weeks for each year of service, according to PEG. This guideline has been complied with about half the time. In the latest report, five of the eight employers met or exceeded this standard.

Employers have generally done better in meeting the PEG guideline for assisting terminees in finding new employment. Overall, compliance has been at the 70% level. In the latest report, seven of the employers complied. For the other, Domino Amjet, two terminees reported receiving no assistance.

The PEG pension-vesting standard of full vesting after 10 years of service is almost always met. In the latest report, seven of the eight employers complied. For the other, Domino Amjet, there was insufficient information for CPR to make a judgment. For the past six years compliance with the standard has been at the 94% level. For all 27 reports, it is 86%. □

ACS guidelines

Advance notice. Four-week minimum.

Severance pay. Minimum is two weeks per year of service. Additional notice may be given, by mutual agreement, in lieu of severance pay.

Assistance. Efforts should be made to place terminee in another position within the organization, or terminee should be given assistance to find employment elsewhere.

Pension plan vesting. Full vesting after 10 years' service.

Employee service. Those with minimum of 10 years' service should not be terminated except for continued evidence of previously documented inadequate performance or cause.

Employee protection plans. Should be extended for a minimum of one month, plus two weeks for each year of employee service, following termination, at same rate of contribution as before. Employee would have additional 31-day grace period.

NOTE

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